A Cross-Sectional Study of Co-Occurring Suicidal and Psychotic Symptoms in Inpatients at Mathari Psychiatric Hospital, Nairobi, Kenya

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Objectives: To investigate the prevalence of suicidal symptoms and their co-occurrence with psychotic symptoms in patients at Mathari Hospital.

Method: A descriptive cross-sectional study was conducted in June 2004 on inpatients at Mathari Hospital, the national psychiatric teaching and referral hospital. Data on sociodemographic characteristics and clinical diagnoses of inpatients were extracted from their clinical notes. The Structured Clinical Interview for DSM-IV (SCID) Screening Module was used to elicit information on psychotic and suicidal symptoms.

Results: A total of 691 patients were interviewed, of whom 308 (44.6%) had suicidal symptoms. There were significant positive correlations ($p < .05$) between psychotic and suicidal symptoms diagnosed according to the criteria of the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV) suggesting co-existence of these 2 sets of disorders.

Conclusions: There is a high prevalence of suicidal symptoms in the patients admitted at Mathari Hospital with predominantly psychotic disorders. Although these prevalence rates are much lower than those reported elsewhere, especially for schizophrenia, they are still a cause for concern given that these suicidal symptoms were not being managed.

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Bertolote and Fleischman[1] found that 19.9% of the patients with schizophrenia admitted in hospitals were at risk of suicide. In an earlier study, Dassori et al.[2] reported that on admission, 32% of schizophrenic individuals seeking emergency evaluation and care reported experiencing suicidal indicators such as death wishes, suicidal plans, and suicide attempts. Approximately 50%–75% of patients with bipolar disorders concurrently experienced psychotic symptoms,[3] and these symptoms have been reported at a lifetime prevalence of 90%.[4] In a cross-sectional survey of 4972 hospitalized subjects, Baethge et al.[5] reported that the prevalence of psychotic symptoms such as hallucinations, delusions, and formal thought disorder and psychomotor disturbances such as catatonia ranged from 5.9% in unipolar depressed patients to 61.1% in schizophrenic patients. Schizophrenia and other psychotic disorders, such as mood disorders, which are associated with completed suicide, have been found to be comorbid in various combinations.[6] Studies among individuals with psychotic disorders such as schizophrenia have reported that suicidal behavior usually occurs a few years after the onset of psychosis[7] and that the rates of suicide among individuals with these disorders are markedly higher.[8,9] Insight, or awareness of illness;[10] significantly younger age; level of education; rate of lifetime depressed mood and hopelessness; and number of positive symptoms[11] have been considered risk factors for suicide in schizophrenic patients. These studies suggest that psychotic disorders of various types are significantly associated with suicidal symptoms and completed suicide.

In Africa, several studies have shown that there is a relationship between suicidal symptoms and psychiatric disorders. Mental disorders have been found to be strong predictors of suicidal behavior.[12] A study to investigate deliberate self-harm found that the most commonly reported psychiatric disorders among cases were adjustment disorder, acute stress reactions, and depression.[13] However, there are no data on the co-occurrence of suicidal symptoms and psychotic symptoms, and, therefore, there is no basis on which comparisons with findings in

Western settings can be made. These comparisons can give some indication of the size of the problem in Kenya. Understanding the relationship between suicidal and psychotic symptoms will be useful in the assessment and treatment of individuals with these disorders. This study aimed to fill that gap.

METHOD

Setting

This study was conducted at the Mathari Hospital, Kenya's premier psychiatric hospital, and the national psychiatric teaching and referral hospital. Established in 1911, the hospital is situated about 10 kilometers from the center of Nairobi (Kenya's capital city) and continues to undergo upgrading. The hospital now has 600 beds, a third of which are reserved for female patients. It has 6 government-employed psychiatrists, 2 of whom are in almost full-time administration. This means that only 4 psychiatrists handle clinical responsibilities full-time. There is no child and adolescent unit. The hospital admits disturbed patients, usually those with psychosis, who cannot be managed in the community or in public general medical facilities, and who cannot afford private psychiatric treatment. Its catchment area is largely urban Nairobi, together with its rural and urban environs.

Study Design and Subjects

The study employed a descriptive cross-sectional design. All inpatients at the Mathari Hospital during the month of June 2004 were considered for inclusion into the study.

Ethical Issues

Permission to conduct this study was obtained from the hospital ethics committee. Informed consent and assent (for 138 patients who were not calm enough, family members provided consent on their behalf) were obtained from the patients when they were not exhibiting disruptive behavior. The patients were informed that they could terminate the interview at any time without victimization, that no incentives would be offered for their participation, that apart from the clinical interviews there were no other procedures to be conducted on them, and that the results would enable better handling of patients' clinical issues. Confidentiality was assured.

Instruments and Procedure

The interviews were carried out by several volunteer, senior registered psychiatric charge nurses during their spare time. The nurses were trained by the first author (D.M.N.) on the use of the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID)[14] and on the use of a structured format to extract sociodemographic and diagnostic information from the case notes of the patients. As part of the training, all the nurses involved went through all the SCID questions together to ascertain that they all understood each one of them. They were then given an opportunity to practice their interviewing skills on actual patients who were not part of the study. This was done to ensure that the administration procedures were standardized in order to increase reliability. The SCID allowed for a systematic collection of data on psychiatric symptoms, and this was advantageous for the patients. The SCID also allows for the inquiry of specific suicidal and psychotic symptoms and provides guidelines on how to code them.

Data Analysis

Analysis of the data was done using SPSS, version 11.5 (SPSS Inc., Chicago, Ill.), to generate frequencies on sociodemographic variables, suicidal symptoms, and the psychotic symptoms elicited using the SCID. Suicidal symptoms were also compared to the various psychotic symptoms. Chi-square tests were used to test for significant associations between sociodemographic characteristics, suicidal symptoms, and psychotic symptoms. Pearson 2-tailed correlation tests were used to test for significant correlations between various suicidal symptoms and psychotic symptoms.

RESULTS

Six hundred ninety-one patients were admitted to Mathari Hospital during the month of June 2004. None of them refused to participate in the study as all of them gave informed consent. Suicidal risk was not an indication for admission of any of the patients.

Prevalence of Suicidal Symptoms in the Leading Hospital Diagnoses

Overall, 44.6% (n = 308) of the 691 patients had current suicidal symptoms when they were screened using the SCID. One hundred one patients (14.6%) reported having recurrent thoughts of death, 92 (13.3%) reported suicidal ideation, 55 (8.0%) had specific plans for death, and 60 (8.7%) had made suicide attempts. A similar pattern of decreasing prevalence of the specific types of suicidal symptoms was seen in patients with schizophrenia (n = 234) (9.4%, 9.0%, 6.0%, and 5.1%, respectively) and schizoaffective disorder (n = 29) (13.7%, 13.7%, 6.9%, and 3.4%, respectively). Attempted suicide was reported more frequently than having specific plans for death in patients with bipolar I disorder (n = 159) (15.1% vs. 11.3%, respectively), psychosis (n = 138) (9.4% vs. 8.7%, respectively), and substance use disorder (n = 42) (11.9% vs. 9.5%, respectively). The highest prevalence of suicidal symptoms was reported in patients with bipolar I disorder (64.8%), followed by substance use disorder (64.3%), psychosis (46.4%), and schizoaffective

Table 1. The Pattern of Suicidal Symptoms in 308 Patients Who Scored for a Current Suicidal Symptom on the SCID (N = 691)[a]

Variable	Recurrent Thoughts of Own Death	Suicidal Ideation	Specific Plans for Suicide	Suicide Attempt	Total
Sex					
Male (n = 436)	61 (14.0)	57 (13.1)	27 (6.2)	35 (8.0)	180 (41.3)
Female (n = 255)	40 (15.7)	35 (13.7)	28 (11.0)	25 (9.8)	128 (50.2)
χ^2 (p value)	6.449 (.040)*	3.893 (.143)	8.794 (.012)*	2.325 (.313)	
Age, y					
<19 (n = 34)	5 (14.7)	3 (8.8)	1 (2.9)	2 (5.9)	11 (32.3)
20–39 (n = 475)	75 (15.8)	65 (13.7)	38 (8.0)	42 (8.8)	220 (46.3)
40–59 (n = 143)	19 (13.3)	21 (14.7)	12 (8.4)	13 (9.1)	65 (45.5)
60+ (n = 31)	2 (6.5)	1 (3.2)	1 (3.2)	1 (3.2)	5 (16.1)
Not indicated (n = 8)	0 (0.0)	2 (25.0)	3 (37.5)	2 (25.0)	7 (87.5)
χ^2 (p value)	12.339 (.579)	15.564 (.341)	21.310 (.094)	13.121 (.517)	
Marital status					
Single (n = 384)	60 (15.6)	53 (13.8)	32 (8.3)	33 (8.6)	178 (46.3)
Married (n = 193)	27 (14.0)	25 (12.9)	15 (7.8)	15 (7.8)	82 (42.5)
Other (n = 84)	3 (3.6)	6 (7.1)	2 (2.4)	6 (7.1)	17 (20.2)
Not indicated (n = 30)	4 (13.3)	2 (6.7)	1 (3.3)	2 (6.7)	9 (30.0)
χ^2 (p value)	8.684 (.370)	2.460 (.964)	3.995 (.858)	7.963 (.437)	
Level of education[b]					
Tertiary (n = 37)	7 (18.9)	5 (13.5)	3 (8.1)	4 (10.8)	19 (51.3)
Secondary (n = 310)	49 (15.8)	47 (15.2)	26 (8.4)	34 (10.9)	156 (50.3)
Primary (n = 284)	38 (13.4)	34 (12.0)	22 (7.7)	18 (6.3)	112 (39.4)
Not indicated (n = 60)	7 (11.7)	6 (10.0)	4 (6.7)	4 (6.7)	21 (35.0)
χ^2 (p value)	7.049 (.316)	6.042 (.418)	2.204 (.900)	8.146 (.228)	
Clinical diagnoses[c]					
Schizophrenia (n = 234)	22 (9.4)	21 (9.0)	14 (6.0)	12 (5.1)	69 (29.5)
Bipolar disorder (n = 159)	30 (18.9)	31 (19.5)	18 (11.3)	24 (15.1)	103 (64.8)
Psychosis (n = 138)	22 (15.9)	17 (12.3)	12 (8.7)	13 (9.4)	64 (46.4)
Substance abuse (n = 42)	9 (21.4)	9 (21.4)	4 (9.5)	5 (11.9)	27 (64.3)
Other (n = 49)	6 (12.2)	4 (8.2)	5 (10.2)	5 (10.2)	20 (40.8)
Not indicated (n = 69)	4 (5.8)	4 (5.8)	2 (2.9)	1 (1.4)	11 (15.9)

[a]Values expressed as n (%) except where noted.
[b]Tertiary = post-secondary education, secondary = 9 to 12 years of formal education, and primary = 1 to 8 years of formal education.
[c]Clinical diagnoses were extracted from the notes.
*$p < .05$.
Abbreviation: SCID = Structured Clinical Interview for DSM-IV.

disorder (37.9%). The lowest prevalence of suicidal symptoms (29.5%) was reported among patients with schizophrenia.

Suicidal Features of Patients According to Sociodemographics and Diagnoses

Overall, the proportion of female patients (50.2%) with suicidal features was higher than that of male patients (41.3%). However, significant differences between the genders were only seen in those patients who had recurrent thoughts of own death ($\chi^2 = 6.449$, $p = .040$) and specific plans for suicide ($\chi^2 = 8.794$, $p = .012$). There were no other significant differences in the prevalence of suicidal symptoms according to the remainder of the sociodemographic variables (Table 1).

Positive Correlations Between SCID Psychotic Syndromes and Suicidal Symptoms

Among all the psychotic symptoms, hallucinations and bizarre and persecutory delusions were most commonly correlated with all the suicidal symptoms. Thought broadcasting was significantly and negatively associated with suicidal ideation and suicide attempt (Table 2).

DISCUSSION

Four of the 5 leading disorders as diagnosed by the clinicians were psychotic disorders, and these accounted for 81.1% of all admissions. Full details on the first working diagnoses of all the patients are presented elsewhere.[15] In this context, *psychosis* as a disorder is defined according to the DSM-IV criteria for a "psychotic disorder not otherwise specified" and pertains to situations in which the clinician has concluded that a psychotic disorder is present, but is unable to determine whether it is primary, due to a general medical condition, or substance induced.[16] The patients at the Mathari Hospital thus provided an ideal population for the study of suicidal symptoms in psychotic patients. Patients with substance use disorder were also included in the study, as comorbidity rates of up to 50% have been reported between substance use disorders and schizophrenia.[17]

This study found an average prevalence of 8.7% of attempted suicide, which was much lower than the 30.2% prevalence reported in a study that included patients with similar psychiatric disorders.[18] However, suicidal ideas (13.3%) and specific plans for suicide (8.0%) were reported at higher rates than in a study of 1590 non-

Table 2. Pearson Correlations Between SCID Psychotic Syndromes and Suicidal Symptoms in 308 Patients Who Scored for Suicidal Symptoms on the SCID

Psychotic Syndrome	Recurrent Thoughts of Own Death	Suicidal Ideation	Specific Plans for Suicide	Suicide Attempt
Delusions				
Bizarre	0.143**	0.131*	NS	NS
Persecutory	NS	NS	NS	0.132*
Thought broadcasting[a]	NS	–0.106*	NS	–0.107*
Hallucinations				
Third party	0.111*	NS	NS	NS
Tactile	0.163**	0.120*	0.179*	0.230**
Commands that are obeyed	NS	NS	0.125*	0.137*
Running commentary	NS	NS	NS	0.136*

[a]Negative correlation denoting mutual exclusivity of variables.
*Correlation is significant at the .05 level (2-tailed).
**Correlation is significant at the .01 level (2-tailed).
Abbreviations: NS = not significant, SCID = Structured Clinical Interview for DSM-IV.

psychiatric patients seeking emergency treatment in a study in the United States, which reported rates of 11.6% and 2.0%, respectively.[19]

Although schizophrenia was the most common hospital diagnosis, schizophrenic patients recorded the lowest prevalence of overall suicidal symptoms (29.5%). This rate was less than the 40%–50% prevalence of suicidal ideas (not just thoughts) reported in 61 cohort studies and the 32% rate of current suicidal indicators (death wishes, suicidal plans, and suicidal attempts) reported in 801 individuals with schizophrenia seeking emergency evaluation and care.[2] The same study, as well as another conducted on patients with recent onset schizophrenia,[20] reported prevalence rates of between 20% and 50% for attempted suicide in schizophrenic patients, a level that was high when compared to 5.1% found in this study.

The high prevalence of suicidal symptoms in the bipolar disorders in this study population was expected since some studies have shown that it is the mood component that is the most important risk factor for suicidal symptoms,[21,22] and in particular, the depressive phase.[23,24] The high prevalence of suicidal features in patients with substance use disorder is consistent with substance use disorder's comorbidity with mood disorders and schizophrenia,[17] and this may increase the risk for suicide.[25]

The higher rates of suicidal symptoms in female patients than in male patients may be a reflection of a higher prevalence of mood disorders in female patients. Though not to a significant level, the finding that patients aged between 20 and 39 years had a high prevalence of suicidal symptoms was in agreement with findings of other studies in which being young increased the risk of suicide,[17,26–28] particularly for those in the 20- to 29-year age group.[18]

The correlations between the various SCID psychotic symptoms and specific suicidal symptoms corroborate findings of other studies.[21,29] Furthermore, psychotic symptoms have been found to occur in mood disorders, though at a lower prevalence than in schizophrenia.[5] There are several explanations, though speculative, for this finding. Hawton et al.[21] have argued that these psychotic symptoms, particularly occurring in the early stages of the illness, cause the patient to feel a sense of loss of control of self and that it is this that may be the cause of the suicidal behavior, rather than a risk factor. For example, a person burdened by psychotic symptoms of persecutory delusions, hostile hallucinations, or passivity phenomenon when he or she feels out of control may be driven to a state of helplessness by these very psychotic symptoms. This person may then be driven to consider suicide as an escape. There is, however, need for further research to clarify this observed association. The authors have no explanation or knowledge of similar findings of the negative correlation between thought broadcasting and suicidal symptoms.

It can be concluded that there is a high prevalence of suicidal symptoms in the patients admitted at Mathari Hospital with predominantly psychotic disorders as has been reported in other studies of patients with psychosis.[30] Although these prevalence rates are much lower than has been reported elsewhere, especially for schizophrenia, they are still a cause for concern given that these suicidal symptoms were not being managed. Studies have also shown that 40%–61% of schizophrenia patients who died by suicide had made previous attempts[31,32] and that suicide was the greatest cause of premature death among those with a diagnosis of schizophrenia, with approximately 10% dying as a result of suicide.[33,34]

This study did not provide an explanation for the low levels of suicidal features in this group of psychotic patients compared with findings in similar patients studied in other settings. Neither did it clarify other risk factors at play, apart from suicidal symptoms and the clinical diagnoses. Social factors may have had a significant influence on suicidal behavior in this population, and these, together with cultural and religious factors, should be studied in terms of whether they predispose one to or protect one from suicidal tendencies.

There are several caveats in the interpretation of the findings of this study. The first is that although the interviews were conducted by psychiatric nurses who had the

clinical experience and who had been trained, overall interrater reliability was not determined. However, the SCID has been used extensively in various cross-cultural settings.[35] The other limitation was the use of hospital working diagnoses for the purpose of this report, and yet the main objective of the study was to determine if there were relationships between suicidal symptoms and psychotic symptoms using the less subjective SCID, which inquires for symptoms of DSM-IV diagnoses. One merit of the study, however, is that, in order to avoid bias in the data collection process, the nurses, who were also non-independent researchers and who had worked in the same hospital for a long time, were not allowed to interview patients in their own wards.

The findings of this study do, however, suggest that routine inquiry for suicidal features is a necessary clinical practice, despite the overwhelming presentation of psychotic symptoms and regardless of the working diagnoses of the type of psychotic disorder. This study also demonstrated that the patients communicated their potential for suicide if asked specifically. The findings of this study have clinical practice implications as well as wide significance in Kenya and other African countries with similar sociocultural contexts since they add to the pool of data on suicidal features in different cultures.

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